Use Case Scenarios

1A. REGISTRATION AND CLAIMS RECORD REPOSITORY

Registration messages and claims data are combined to create an initial index of encounters.

Claims information can indicate when, where and for what diagnoses visits and procedures occur, although data is often not available for weeks or months after an encounter has occurred. Information from registration systems can provide similar information more rapidly, as well as validating a user as someone physically caring for a patient. Both types of data can be assembled into a patient-centric historical summary of care provided.

- **1A.1. Registration-driven authorization process for patient consent to participate in regional exchange.** This process is analogous to the HIPAA instructions given to patients at the time of registration.

- **1A.2. Registration information on patient is sent to the regional exchange.** In most cases this is an automated feed of an HL7 ADT message.

- **1A.3. Regional exchange system uses record locator service to aggregate available data on registered patient and forwards the aggregated report back to clinical site.** The clinical site is likely to utilize a portal type viewer for looking up these reports.

- **1A.4. Regional exchange is populated by routine downloads of claims data in addition to streaming registration data.** Claims data likely added by periodic batch process.

- **1A.5. Regional exchange automatically feeds pseudoanonymized data to public health surveillance system.** Pseudoanonymized suggests that if public health needs to track back to investigate a case, the case can be re-identified as an individual patient.

- **1A.6. Public health decision support is enabled.** Longer term, registration with a particular chief complaint may trigger alerts from public health authorities. For example, during a pertussis outbreak, an advice message might be sent for patients reporting "cough" as part of the chief complaint informing which criteria might be used to select patients for pertussis testing.

1B. PATIENT HEALTH RECORD REGISTRATION MODULE

Enable patients to electronically enter, update, correct, and add typical demographic and insurance information used for registering with providers.

The notion is to replace the commonly used clipboards and paper forms used to register patients, frustrating patients by requiring them to repeat information every time they are seen in a new healthcare provider location.

- **1B.1 Patient-entered data via secure web site.** An electronic patient health record registration dataset could reduce transcription error and recall fatigue and otherwise improve speed and accuracy of registration for health care providers and patients.

- **1B.2. Advance directives viewable.** Patients are enabled to mount advance directive documents in their Personal Health Record. Can be viewed as needed

2. RESULT AND DOCUMENT DELIVERY

Clinicians register to receive laboratory results and documents directed to them by other healthcare service providers

A single Regional Delivery System (RDS) for point-to-point transmission of results and reports (e.g., labs, imaging, etc.) between service providers and clinical providers. For example, when a patient's laboratory results are completed the laboratory (service provider) sends results to the ordering physician (clinical provider) using the regional electronic delivery system. Similarly, a specialist could use the same system to send consultation results to the referring clinician. This system replaces multiple directories and delivery systems with a single system. Some users might still receive information by fax, but the availability of electronic delivery can greatly reduce costs for providers with or without full electronic medical records (EMRs).

As standards for documents (eg CDA) and vocabulary (eg LOINC, SNOMED) are adopted, senders can begin sending machine-readable standardized documents for use in EMR and decision support systems.

System adoption simply requires users to identify the RDS as their preferred address for receiving results that are directed to them. They inform the RDS how they desire results delivered (fax, secure email, etc.). Delivery options can be made sensitive to stat results and after-hours/vacation options, etc. Longer term, if patients are included in the user pool they too may can also receive results as directed by the clinician.

So long as the system only routes documents (rather than assembling databases of patients or results in response to ad hoc queries) it creates fewer legal, privacy, confidentiality or data use issues.

- **2.1. Initially limited to situations where the clinicians order lab tests on their own patients and then they receive results of the tests ordered by them.** This approach is focused on a single result – single transaction model.

- **2.2. Lab result look-up (patient-centric data summary).** With the addition of a patient record locator a patient-centric model can be created. Authorized providers will then be able to look up a longitudinal series of test results and documents for a given patient, including results of tests that were not necessarily ordered by that provider.

- **2.3. Addition of document delivery and document look up.** Documents such as radiological interpretations, discharge summaries, and clinic notes are delivered and or made available for look up using the same architecture.

- **2.4. Public Health Electronic Lab Reporting.** Public health agencies also list RDS as method for sending mandated laboratory reporting (e.g., positive TB culture). Reporting to public health for mandated conditions could be automated based on certain results.

3. MEDICATION-ALLERGY-IMMUNIZATION RECORD

A patient-centered summary of dispensed prescribed medications, allergies and immunizations is available for review or uploading by clinicians and patients.

- **3.1 Data capture.** Options for data capture include downloads from EMRs, data entry to web based medication reconciliation system, downloads from pharmacy systems, downloads from pharmacy benefit management system, direct entry by patient or proxy into secure web based system. In any case information must be clearly tagged with its source. Immunization information should be integrated into this medication system.

- **3.2. Data view.** Authorized clinicians can look up data on the patients that present to them for care. Mechanism similar to 2.2 above.

- **3.3. Decision support.**

    - **3.3.1. Interaction decision support.** Clinical decision support automatically alerts to allergy-drug or drug-drug interactions

    - **3.3.2. Patient compliance decision support:** Comparison of prescribed with dispensed medications

    - **3.3.3. Formulary decision support:** Clinician alerted to out-of-formulary prescriptions

    - **3.3.4. Evidence-based medicine (EBM) guidelines decision support**

    - **3.3.5. Future patient decision support and educational tools**